

# Beyond the Farmer and the Farm: UPWARD, User's Perspectives and Agricultural Livelihoods

Dindo Campilan, Julieta R. Roa, and Julian Gonsalves<sup>1</sup>

## Abstract

This paper presents UPWARD experiences in developing and promoting participatory research and development in Asia. It traces the evolution of UPWARD concepts and methods associated with users' perspectives and participation, and drawn from field experiences in rootcrop agriculture. In particular, the paper highlights experiences and lessons learned as UPWARD combines its core participatory approach with frameworks for sustainable livelihoods and market chains. It also presents examples of the three types of knowledge products expected of UPWARD as a research program for PR&D in rootcrop agriculture: 1) locally adapted socio-technical innovations, 2) field-tested concepts and methods, and 3) enhanced linkages and capacities.

## I. Overview on UPWARD

Users' Perspectives with Agricultural Research and Development (UPWARD) is an Asia-wide network supporting participatory research and development (PR&D) in agriculture and natural resource management (NRM). Launched in 1990 under the sponsorship of the International Potato Center (CIP), it involves over 50 partner organizations including research institutes, universities, NGOs, public-sector development organizations and local governments.

UPWARD provides a learning and sharing platform for agriculture-NRM practitioners and organizations to jointly address three key challenges in research and development:

- Linking users and R&D professionals for more effective, relevant agricultural innovations.
- Directing benefits to less favored farming areas and marginalized groups especially women.
- Working with households and local communities as key actors in research and development.

Rootcrop agriculture in Asia provides the arena in which UPWARD field-tests PR&D. User participation is a key challenge in rootcrop research and development because of relatively weak support from the formal R&D sector, and of the poor agricultural and environmental conditions associated with these crops.

Through an iterative process of learning and action, UPWARD draws field-tested PR&D concepts and methods from collaborative research to:

- Identify functional niches for rootcrops in rural livelihood systems.
- Harness the value-adding potentials of rootcrops as undervalued crops.
- Improve crop management of high value rootcrops by low-income producers.
- Enhance the role of rootcrops in household food security and nutrition.
- Assess the influence of agroecological and socio-economic transitions on rootcrops.

## II. Users' perspectives

Associated with its focus on users' perspectives and participation, UPWARD supports a "participatory research and development" (PR&D) approach which refers to a pool of diverse yet interrelated

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<sup>1</sup> Program Leader, Network Affiliate and Senior Adviser, UPWARD Partnership Program, International Potato Center (CIP), c/o IRRI, DAPO Box 7777, Metro Manila, Philippines.

concepts, practices, norms and attitudes that enable people to enhance their knowledge for sustainable agriculture and natural resource management (Gonsalves et al, 2005).

UPWARD traces its roots to earlier client-oriented, participatory and systems oriented approaches such as:

- *Farmer-back-to-farmer model* (Rhoades and Booth, 1982), which views technology development and application as a process starting and ending with farmers.
- *Food systems framework* (CIP, 1989), which considers technological change as a process covering pre-production, main and post-production phases.
- *Household systems perspectives* (Hardon-Baars, 1997), which takes the household system as a socio-economic unit for decision-making, production and consumption.
- *Gender analysis* (ISNAR, 1985), which analyzes gender-related aspects of agricultural R&D.
- *Farmer first model* (Chambers et al, 1989), which seeks to develop farmer participatory approaches in agricultural R&D.

While eclectic in its approach, UPWARD was conceived with the following distinct features:

- Unlike most client-oriented approaches influenced by marketing research, UPWARD originated from the household and consumer sciences and therefore views users from an actor orientation.
- It rejects the notion of a farmer stereotype by seeking to explore heterogeneity within the farming population
- In contrast to farmer-centered participatory approaches, it views farmers alongside other types of key user groups.
- It examines not just farming systems or agricultural production, but the broader food system encompassing the entire food production-utilization cycle.

UPWARD takes “users” as actors – either as individuals, households, groups, communities or formal organizations) engaged in the creative generation and use of knowledge – in both hardware and software forms – to achieve desired agricultural innovation (Prain, 1995; Campilan, 1996). Users include: 1) end-users who ultimately apply knowledge for their direct benefit, and 2) intermediate users engaged in transforming and sharing knowledge with the former. Meanwhile, “users’ perspectives” represent local people’s views and knowledge, their understanding of their biophysical and social world; these include meanings they attach to their experiences, on which their decisions and actions are anchored (Campilan, 1997).

### **III. Learning participation in action: UPWARD on the ground**

Collaborative field projects serve as UPWARD’s core vehicle for PR&D learning and capacity development. These projects bring together a diverse set of partners which jointly set project agenda while pooling their expertise and resources. The underlying partnership goal is to foster shared ownership of the processes and outcomes.

UPWARD field projects focus on needs and opportunities associated with rootcrop agriculture – particularly for sweetpotato and potato – in the South-east, North-east and South Asian sub-regions. Examples:

- *Piloting approaches in mobilizing communities* for integrated disease management (potato in Nepal and China) and on-farm conservation of genetic resources (sweetpotato in the Philippines)
- *Developing and field-testing participatory learning methodologies*, including farmer field schools for integrated crop management (sweetpotato in Indonesia) and farmer-to-farmer extension for optimizing use of local animal feed resources (Vietnam and the Philippines)
- *Strengthening micro-enterprises* for agri-food products (Philippines) and linking with markets and private/commercial sector (potato in Indonesia)
- *Facilitating joint experimentation and learning* on local crop-livestock livelihood systems (sweetpotato in Lao PDR and Indonesia) through multi-stakeholder partnerships.

- *Enabling support services and markets to serve poor farmers*, such as commercial production of high-quality seed (sweetpotato in the Philippines, potato in Nepal)

UPWARD's underlying PR&D capacity development goal is to nurture young and middle-level scientists, especially those from lesser known and non-traditional research and development organizations in the region. It makes use of a mentoring approach that enables junior PR&D professionals to receive individualized and continuous guidance from more senior colleagues. Example:

- *Strengthening regional capacity for PR&D in South Asia*: piloting an integrated capacity development approach that combines training, field research, mentoring, publications, and electronic/on-line tools. It sought to strengthen regional capacity and promote institutionalization of PR&D in South Asia, involving 20 strategic partner organizations in Bangladesh, Bhutan, India, Nepal and Sri Lanka.
- *Learning to use evaluation in capacity development* for community-based natural resource management in northeast and southeast Asia: collaborative learning to develop and field-testing methodologies for evaluation of capacity development. It involves 9 partners in China, Mongolia, Philippines and Vietnam forming three learning clusters: research networks, academic organizations and community-based organizations.

Drawing upon its field project experiences, UPWARD has developed international training curricula covering key capacities for understanding, doing and enabling PR&D. The curriculum and accompanying materials have been adapted by other organizations for use in many regional and national training courses. Examples:

- Training course on *PR&D and extension* (with the International Rice Research Institute)
- Training course on *agro-enterprise development in a micro-regional context* (with Southeast Asian Center for Graduate Study in Agriculture)
- Training course on *participatory monitoring and evaluation* (with International Institute of Rural Reconstruction)

Several manuals and volumes of papers have been published to promote wider access to and sharing of PR&D knowledge. UPWARD has led global initiatives to develop sourcebooks which synthesize field-tested concepts and methods, based on experiences of over a hundred organizations around the world. Available in printed, on-line and CD editions, these publications have been translated into several languages and serves as key reference for field practitioners and trainers. Examples:

- Global sourcebook on *conservation and sustainable use of agricultural biodiversity*
- Global sourcebook on *PR&D for sustainable agriculture and natural resource management*
- *(each of the above is a 3-volume set on understanding, managing and doing, and enabling)*

#### **IV. What have learned?**

In an iterative process of action and reflection, UPWARD's thinking and practice of PR&D has continuously evolved through 16 years of direct experience in implementing field projects, sharing and learning with similar initiatives on participatory research, and strengthening individual and organizational capacities of partners and other interested groups. In this paper, we highlight those that relate to UPWARD efforts in introducing a sustainable livelihoods perspective to its agenda on PR&D for rootcrop agriculture.

*From food systems to livelihood systems.* UPWARD began with a food systems framework as a means to promote greater focus on the neglected aspects of agricultural research -- beyond field production and into consumption, marketing, postharvest and nutrition (Rhoades, 1990). This encouraged UPWARD looking beyond on-farm production and the producing farmers, while becoming sensitized to the full range of users in the food chain (Prain, 1995). Using the concept of food systems in undertaking participatory documentation and assessment, UPWARD better understood the role of rootcrops in the diet, nutrition and food survival especially among marginal upland communities and ethnic groups.

For example, research in Indonesia and the Philippines documented the importance of sweetpotato as a food staple in remote farming communities, as part of homegarden diversity that contributes to nutrition improvement for household members, and as a buffer crop during crisis situations (Minantyorini et al, 1996, Gayao, 1995, Mendoza, 1992). Yet at the same time, the food systems research also uncovered that sweetpotato increasingly became an indirect food source for households who sold their products to generate cash income (Francisco et al, 1993), is part of the symbolic world of ethnic groups which attach religious and cultural values to the crop (Schneider and Yaku, 1996), or serves as feed, rather than food, input to women-managed livelihood of animal production (Peters et al, 1998).

In taking users' perspectives on the role of sweetpotato in food systems, UPWARD began to understand the wider roles of the crop in the livelihood of farming households. As Castillo (1995) pointed out to UPWARD, users have taught researchers that sweetpotato is a secondary crop with primary functions – consumption/nutrition, income/employment, natural resource sustainability, and gender/social equity.

*From crop production to agricultural livelihoods.* Through a better understanding of users and users' perspectives on rootcrop livelihood, UPWARD organized its research agenda according to three thematic groups: 1) enhancing production systems -- for soil, seed, pest and disease management, 2) sustaining genetic resources conservation – for documenting, collecting and using local germplasm and associated knowledge, and 3) promoting processing-marketing-consumption – for creating and optimize value-adding opportunities from rootcrops.

This three-pronged agenda for PR&D on rootcrop agriculture proved useful for identifying and mobilizing interdisciplinary research expertise, in closely working with users to address livelihood needs and opportunities in rootcrop agriculture. Yet it also became clear that field-level problems could not be neatly divided according to these thematic categories. For instance, farmers' interest to participate in season-long field schools on pest management was highly influenced by fluctuations in market prices for sweetpotato (Van de Fliert et al, 1997). Similarly, the sustainability of community-managed genebanks hinged on whether the cultivars being conserved, or the crops themselves, have high use-value and market demand (Prain and Bagalanon, 1998). These field experiences suggested the need for an integrated framework for rootcrop livelihood that links production systems, genetic resources conservation, and processing-marketing-consumption.

Still, the crop/s-focused framework remained inadequate to understand the dynamics of household decision-making and action with respect to pursuing rootcrop agriculture vis-à-vis other agricultural livelihoods. Farming households invested their limited resources in rootcrops, being low-input crops with high potential livelihood benefits. Rootcrop agriculture was also used as part of a livelihood diversification strategy for better risk management and income optimization among resource-poor households (Campilan, 1999).

Subsequently, UPWARD found livelihoods analysis as valuable starting point in PR&D, by taking a broader perspective on household needs and opportunities with respect to livelihoods on-farm, off-farm and non-farm. This helped researchers and users to jointly identify: 1) the comparative advantages of rootcrop agriculture vis-à-vis other livelihoods, 2) appropriate innovations for enhancing livelihood benefits from engaging in rootcrop agriculture, and 3) impact contributions of rootcrops to the overall livelihood system of farming households. This shift in approach helped UPWARD generate empirical evidence that women and rootcrops are not always secondary farmers of secondary crops (UPWARD and FAO-RAP, 2002).

These are appropriately illustrated by UPWARD's crop-livestock systems projects in Vietnam and the Philippines (Tinh et al 2007, Adion et al 2007). While farming households cultivate sweetpotato and cassava, these crops are only seen as a means to succeed in what they consider as their primary livelihood – animal production. In the face of expensive commercial feed and seasonal shortage of forages, rootcrops serve as low-cost and locally available feed resources in backyard livestock production. Building on users' perspectives on the niche that rootcrops occupy in their livelihood systems, UPWARD projects have since shifted from directly promoting rootcrop cultivation to helping animal raisers optimize the use of local feed resources -- including but not limited to sweetpotato.

*From farms to market chains.* The adoption of a sustainable livelihoods framework helped UPWARD moved beyond the crop and the farmer. Yet its PR&D work still sought participation mainly by farmers/cultivators, and most often on-farm. With increased influenced from the sustainable livelihoods approach (Farrington et al 1999), UPWARD has recently taken the challenge of undertaking PR&D with actors along market chains -- from cultivators to consumers (UPWARD 2003).

Among the earlier efforts was the introduction of processing-type potato varieties in Indonesia (Sinung-Basuki, 2003). Promising clones were selected, and later approved by the government for official release, based on a series of evaluations involving farmers, traders, snackfood factories, and consumer groups. The challenge was to combine the often divergent selection criteria used by market chain actors, toward identifying varieties which meet the preferences and requirements of all of them.

With their strategic role in ensuring timely production of high-quality farm products, formal and informal service providers have become key participants in PR&D for agricultural livelihoods. Seed producers' groups in Nepal and the Philippines learned techniques for rapid multiplication and seed selection (Lama and Hidalgo, 2003; Laranang and Basilio, 2003). Together, seed suppliers and farmer-cultivators developed mechanisms to coordinate distribution and marketing with equitable benefits for them.

Micro-enterprises for snackfood in the Philippines (Boncodin et al, 2003) have experimented with both technical and organizational innovations. Entrepreneurs developed products whose required ingredients could be modified depending on the seasonal supply of rootcrop and fruits. After unsuccessful experiences in organizing the enterprise through cooperatives and associations, women entrepreneurs finally opted for a model of household-based producers which are linked together as an informal marketing cluster.

Just this year, UPWARD launched a new initiative to link vegetable farmers with markets in the (peri)urban centers of Java Indonesia. Characterized by long and complex supply chains, the main challenge of the project is to bring together the different chain actors to resolve problems of coordination in supply and distribution, price fluctuations, inconsistent quality of products, and limited access to institutional support services (Campilan and Asmunati, 2007). The project will serve as a vehicle for piloting PR&D that combines participatory market chain approach (Bernet et al 2006), farmer field school (CIP-UPWARD, 2003) and more conventional socio-economic and market research methodologies.

## V. Continuing Challenges

UPWARD accomplishments to date can be viewed in terms of its knowledge products expected as a CIP partnership program: 1) locally adapted socio-technical innovations, 2) field-tested concepts and methods, and 3) enhanced linkages and capacities.

To date, UPWARD has completed a set of case projects documenting processes and impacts for enhanced root and tuber crop livelihoods. It has also established a substantial knowledge base to support understanding and doing participatory R&D. Moreover, it has established a network of individuals and organizations providing CIP with a regional platform for collaborative research and development.

### Highlights of UPWARD accomplishments as of 2007

<b>Accomplishment</b>	<b>Examples</b>
<b>1. Root and tuber livelihoods</b>	
Locally adapted innovations for root-tuber crops and UPA livelihoods	a. Community-managed system of sweetpotato clean planting materials (CPM) production, Philippines b. Processing-type potato varieties officially released following multi-user evaluation, Indonesia
Field projects with documented field- and institutional level impacts	a. Field-level and institutional impacts of potato integrated crop management, Nepal b. Impact of farmer field schools on sweetpotato integrated crop management, Indonesia
Platforms for intra-CIP	Integrated projects that bring together resources and expertise

<b>Accomplishment</b>	<b>Examples</b>
integration	of different CIP research divisions in pilot “learning sites”, Philippines and Vietnam
<b>2. Participatory R&amp;D</b>	
Pool of field-tested tools for understanding and doing PR&D	a. PR&D concepts and methods distilled in a sourcebook now globally distributed b. UPWARD website now acknowledge as leading on-line resource for PR&D information, evidenced by hits/downloads monitored
Publications, training and information products with documented distribution and use	a. Three international training courses developed and phased over to partners and now regularly offered as fee-based course b. Two books released by commercial publishers, and several non-copyrighted publications translated by partners into local languages (e.g. Persian, Chinese, Nepali)
Testing ground for new concepts and ideas	a. UPWARD was the first in CIP to develop and pilot the farmer field school approach, now widely used by other research divisions/projects b. UPWARD was the first in CIP to empirically apply the sustainable livelihoods framework, now a central element in CIP’s vision-mission
<b>3. Partnership building</b>	
Network of diverse partner organizations	a. Over 50 partner organizations across Asia comprising diverse institutions beyond typical NARIs, as platform for partnership with CIP b. UPWARD has collaborated with and provides capacity development support to 8 CGIAR centers and associated systemwide programs
PR&D capacities for these partner organizations	a. UPWARD pioneered efforts at CIP to transform capacity development from service to a research agenda b. A DGIS publication recognized UPWARD as outstanding model for regional capacity development and networking
Demonstrated capacity for resource mobilization by partners	a. National/local partners have successfully accessed donor funding through proposals built on earlier collaboration with UPWARD b. National/local partners have mobilized their own resources as counterpart funding to collaborative activities with UPWARD

At the same time, UPWARD experiences have shown that PR&D’s contribution to livelihood impacts could be enhanced when: a) combined with enabling factors such as support services, market access and policy development; b) other non-conventional impacts beyond economic/agronomic are taken into account; c) agricultural innovations become part of integrated multi-sectoral development interventions, and d) PR&D is anchored on strong partnerships and organizational capacities.

Building on these lessons, UPWARD now seeks to systematically address these challenges through a three-point research agenda for 2007-2009:

1. *Enabling support services, market access and policies to work better for the poor.* What are key institutional arrangements for services provision, market access and policy development to enhance the livelihood assets of the poor? How can poor farming households effectively use human, social, financial, physical and natural assets to achieve their livelihood goals?
2. *Understanding and capturing “new” impacts.* How do impacts which were previously overlooked (e.g. human and social capitals, organizational capacities, natural environment, and gender and social equity) add value to conventional economic/agronomic impacts? What appropriate M&E methodologies could be employed to capture evidence of these new impacts?
3. *Promoting PR&D for agriculture and beyond.* How can participatory research and development (PR&D) serve as platform for linking agriculture with other development sectors? How can PR&D

experiences in agriculture be adapted to address health and nutrition, environment and urban development issues?

### **Literature Cited**

*(to follow)*

### **About the Authors**

*Dindo Campilan* works with the International Potato Center (CIP) as social scientist of Impact Enhancement Division. He has served as leader/coordinator of the UPWARD Program since 1998. He is a development sociologist and communication specialist by training. He holds a PhD (Communication and Innovation Studies) from Wageningen University.

*Julieta R. Roa* is an UPWARD network affiliate (processing-marketing-consumption theme). She is a socio-economist at the Philippine Rootcrops Research and Training Center (PhilRootcrops). She is formally trained in economics, strategic planning and public policy; she obtained her PhD in interdisciplinary social science from Wageningen University. She has been associated with UPWARD since its launching 17 years ago.

*Julian Gonsalves* is UPWARD senior program adviser. He has been closely involved in UPWARD projects on PR&D capacity development and knowledge synthesis. He is the lead editor of the global sourcebook on PR&D published by UPWARD and IDRC in 2005. Previously, he served as vice-president (program) at the International Institute of Rural Reconstruction (IIRR). He holds a PhD (Extension Education) from Cornell University.